Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
	)	
Amendment of Part 101 of the Commission's Rules to Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and to Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licenses.	)	WT Docket 10-153

EX PARTE FILING OF WIRELESS STRATEGIES INC.
TO THE FURTHER NOTICE OF PROPOSED RULE MAKING

I. Smaller Antennas

1. Directional Antenna Standards

As stated by the Commission[1], *"The rule [101.115] on its face does not mandate a specific size of antenna. Rather, it specifies certain technical parameters – maximum beamwidth, minimum antenna gain, and minimum radiation suppression – that depending on the state of technology at any point in time, directly affect the size of a compliant antenna."* and *"We may herein refer to those antennas that comply with the Category A standard as either compliant antennas or Category A antennas and those antennas that do not comply with the Category A standard as non-compliant antennas or Category B antennas."* Therefore, Wireless Strategies Inc. completely agrees with the Engineers for the Integrity of Broadcast Auxiliary Services Spectrum (EIBASS) statements in their filing[2] that *"...microwave antenna ...performance requirements is entirely the antenna's electrical performance, not its physical size. And this is how it should be."* and *"EIBASS particularly appreciates that Comsearch also realizes that it is an antenna's electrical performance, not its physical size, that matters."*

[1] Further Notice of Proposed Rule Making, paragraph 70 and footnote 214
[2] EIBASS filing October 25, 2011, paragraphs 2 and 10.

2. Non-Compliant Antennas Must Not Block New Applicant Paths

In its Reply Comments,[3] Comsearch opposes WSI's proposal to extend Section 101.115(f) of the rules to cover the 6GHz band, based on their erroneous assumption that it will result in harmful interference. WSI strongly disagrees with this position, particularly since extending the proposed Section 101.115(f) to cover the 6GHz band would make certain that non-compliant (smaller) antenna would not cause harmful interference nor block any new applicant paths. By contrast, the Comsearch recommendation is to limit the EIRP of smaller antennas, as this *"... could in some cases eliminate any increase in interference caused by a station as a result of the worse pattern of the smaller antenna."*[4] [emphasis added].

Also, in its Reply Comments Comsearch disagrees with some of the changes proposed by WSI to 101.115(f) as they *"...would allow an upgrade path where a licensee would be permitted to substitute a 'higher' performance antenna rather than an antenna meeting at least Category A."* WSI fails to see the problem with substituting a higher performance antenna – of the same size or slightly larger – to eliminate the predicted interference rather than being forced to use an unnecessarily much larger Category A antenna, with all the disadvantages of larger antennas.

An example of the benefits of the proposed minor modification to Section 101.115(f):

Consider an operator of an authorized 6GHz station using a small 2ft. diameter Andrew P2F-57 (or equivalent) non-compliant antenna, with a main beam centerline EIRP of 59.2dBm. The operator is then advised by a new applicant that the EIRP from the station in the direction of the new applicant (60 degrees off-axis) is causing 8dB of interference. Under the proposed revision of 101.115(f) the operator would have several options:

Option 1. Reduce the transmitter output power

[3] Reply comments filed by Comsearch on October 25, 2011, page 2
[4] Comments filed by Comsearch on October 4, 2011, page 3

By reducing the transmitter output power by at least 8dB, the predicted interference could be eliminated. However, this would also lower the EIRP on the main beam center line by at least 8dB. If this resulted in unacceptable path availability, the operator would have to choose either Option 2a or Option 2b below.

Option 2. Upgrade to a higher performance antenna

Option 2a. If Andrew (or others) had an ultra high performance antenna version of the 2ft. diameter 2PF-57 antenna – lowering the antenna radiation at all angles, with the exception of the gain on the main beam center line – with an antenna pattern at least 8dB better than the original antenna at 60 degrees off the center line, the operator could comply with the proposed requirements of 101.115(f) while still maintaining the economic and other advantages of a small (2ft. dia.) antenna, all without lowering the EIRP of the main beam.

Option 2b. Replace the 2ft. diameter Andrew 2PF-57 antenna with a 4ft. Andrew PL4-59 (or equivalent) antenna. Although the attenuation of this antenna at 60 degrees is 9.9dB more than the attenuation of the (2ft) 2PF-57 at 60 degrees, the gain of the (4ft.) PL4-59 is 6.1dB higher than that of the (2ft.) 2PF-57. So, unless the transmitter output power was reduced, the station would still cause interference into the victim. Fortunately, the proposed revision to 101.115(f) requires that the maximum EIRP be that which was authorized (59.3dBm). Reducing the transmitter output power by 6.1dB would comply with the proposed rule and have the benefit of eliminating the interference.

Clearly options 2a and 2b are far better than being forced to use an unnecessarily much larger Category A antenna with all the disadvantages of larger antennas. Of course, if the interference from the non-compliant station into the proposed station was at such a level that it was not possible to eliminate the predicted interference with a non-compliant antenna, then the station operator would have to upgrade to a compliant (Category A) performance antenna.

II. Summary

- WSI agrees that 101.115 is an electrical specification, not a physical specification.

- WSI supports the use of smaller antennas with their inherent advantages, but only under a regimen that does not cause interference greater than that of a Category A antenna.

- WSI recommends that Section 101.115(f) of the Rules should be revised as proposed, as it would:
    i. Ensure that authorized non-compliant stations do not cause harmful interference, nor would they block new applicant paths.
    ii. Allow for multiple sizes of small antenna in the 6GHz and 11GHz bands.
    iii. Allow for an incremental upgrade of antenna performance in the case of predicted harmful interference or path blockage.
    iv. Minimize side lobe radiation while maintaining the EIRP toward the other end of the link.
- WSI supports proposals that increase the flexibility of the rules to promote innovation, increase the effective use of spectrum, and lower the costs of backhaul and access.

III. Conclusions

The proposed changes would allow designers and users of FS microwave to minimize the cost and make it easier to comply with local zoning and homeowner association rules, and also ensure that the use of antennas not meeting Category A requirements do not increase the potential for harmful interference.

The benefits of such an antenna rule change would include:

- No increased potential to cause harmful interference
- No increased potential to block new applicant paths

- Lower monthly antenna site lease charges
- Lower cost to manufacture
- Easier and therefore less expensive to install
- Lower cost to maintain
- Makes them practical for installation at sites incapable of supporting large antennas
- Raise fewer aesthetic objections
- Permit easier compliance with local zoning and homeowner association rules
- Create employment opportunities in microwave R&D, manufacturing and construction
- Permit the users of the bands to efficiently match the antenna to the application

WSI therefore requests that the Commission act expeditiously to amend Rule 101.115(f) as proposed, so as to bring the above benefits to the wireless industry and the American consumer without further delay.

Respectfully submitted

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